GENERIC NAME: **LIDOCAINE HCl**
112.16

BRAND NAME: Xylocaine
CLASS: antiarrhythmic, local anesthetic

Mechanism of Action:

Decreases automaticity by slowing the rate of spontaneous phase 4 depolarization.
Terminates re-entry by decreasing conduction in re-entrant pathways (by slowing conduction in ischemic tissue, equalizes conduction speed among fibers).
Increases ventricular fibrillation threshold.

Indications and Field Use:

Suppression of ventricular arrhythmias (ventricular tachycardia, ventricular fibrillation, PVC's).
Prophylaxis against recurrence after conversion from ventricular tachycardia or ventricular fibrillation.
Frequent PVC's (>than 6 per minute; 2 or more in a row; multiform PVC's; or R-on-T phenomenon).
Pre-intubation for head trauma or suspected Intra cranial hemorrhage (hypertension and focal neurologic S/S).

Contraindications:

Known hypersensitivity/allergy.
Use extreme caution in patients with conduction disturbance (second or third degree block).

> **Do not treat ectopic beats if heart rate is < 60. They are probably compensating for the bradycardia; instead, treat the bradycardia!**

Adverse Reactions:

CV: May also cause SA nodal depression or conduction problems and hypotension in large doses, or if given too rapidly. Excessive doses in pediatric patient may produce myocardial and circulatory depression.
CNS: In large doses drowsiness, disorientation, paresthesias, decreased hearing acuity, muscle twitching, agitation, focal or generalized seizures.

NOTES ON ADMINISTRATION

Incompatibilities/Drug Interactions:
None known

Adult Dosage:

Pulseless VF/VT: Initial bolus of 1.0-1.5 mg/kg IV PUSH every 3-5 minutes to a total of 3 mg/kg. An initial bolus of 1.5 mg/kg should be given for cardiac arrest situations. Following the return of a spontaneous rhythm, initiate a drip at 2-4 mg/min. See: Maintenance Infusion below.

Antidysrhythmic or rhythms with a pulse: Initial boluses can be given as 1.0-1.5 mg/kg IV PUSH and additional boluses can be given as 0.5-0.75 mg/kg every 5-10 minutes to a total dose of 3 mg/kg. Following the return of a spontaneous rhythm, initiate a drip at 2-4 mg/min; see below.

Maintenance Infusion: Started after return of spontaneous rhythm for either indication above. Add 1 gm - 2 gms to a 250 ml NS or 5 % dextrose solution or use premixed solution (2 gm in 500 ml) and initiate a drip at 2-4 mg/min according to concentration. Patients > 70 years or with hepatic, renal disease or poor perfusion state, reduce maintenance infusion by half.

Pre-intubation for head trauma or suspected Intra cranial hemorrhage (hypertension and focal neurologic S/S). Consider administration of 1 mg/kg IV bolus 1-2 minutes prior to intubation.

Pediatric Dosage:

Initial Bolus doses: 1 mg/kg, may repeat 1 time in 3-5 minutes for VF/Pulseless VT or in 15 minutes if used for refractory dysrhythmias with a pulse (VT with pulse, significant ventricular ectopy).
Infusion with return of spontaneous rhythm, optional: 20-50 μg/kg/min; prepared by adding 120 mg (3cc) of 1 Gm/25 ml (40 mg/ml) solution to 97 ml of NS, yielding 1200 μg/ml.
1 ml/kg/hr delivers 20 μg/kg/min. 2.5 ml/kg/hr delivers 50 μg/kg/min. Reduce to $\leq$ 20 μg/kg/min for children with low cardiac output, severe CHF or compromised hepatic blood flow. Infusion should be avoided unless infusion pump available.

Routes of Administration:

IV bolus, followed by IV infusion. May be given ET if IV access is delayed

Onset of Action:

1-5 minutes

Peak Effects:

5-10 minutes

Duration of Action:

Bolus only - 20 minutes

Dosage Forms/Packaging:

100 mg/5 ml prefilled syringes (for bolus)
1 Gm in 25 ml vials and prefilled syringes (for infusion)
2 Gm in 500 ml D_5W premixed bags (optional)

Arizona Drug Box Supply Range:

PARAMEDIC and QUALIFIED IEMT:	100 mg/5 ml prefilled syringes x 3 - 4 1 gm/25 ml vial x 1 - 2 2 gm/50 ml vial (premixed in 500 ml D5W optional) x 1 - 2
INTERMEDIATE:	0

Special Notes:

> Decrease maintenance infusion by 50% in cases of congestive heart failure, shock, liver disease.
> Cross-allergenicity between local anesthetic "caine" drugs is controversial.
> Consider increased dose for ET administration.
> Infusions: Infusion pump is required for interfacility transports. A minimum of microdrip tubing is required for field use. Lidocaine drip rates established in field should be monitored carefully.